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Abstract 13-41

***Saccharomyces cerevisiae* glycerol uptake: new insights.**

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Glycerol, is a key compound in multiple metabolic pathways including low a_w stress response in *S. cerevisiae*. The presence of a H^+/glycerol symport mechanism associated with the genes *GUP1/2* was demonstrated. *GUP1*-dependent glycerol transport is active by growth under derepression conditions, while *GUP2*-dependent glycerol tranport was found in cells grown under salt-stress, provided glycerol production was impaired (*gpd1gpd2*). We found that *GUP1/2* are both constitutively expressed in cells cultivated in either growth condition as analyzed by quantitative RT-PCR and Northern blot. Also, the pattern of intracellular glycerol concentrations and active glycerol uptake is not consistent with direct feedback inhibition of the latter by the former. We have previously noted that glycerol kinase (Gut1p) activity can cause an artifact appearing as uptake saturation kinetics in mutants deleted in both *GUP1/2* genes. However, we have now found active transport in a *gup1gup2gut1* strain, suggesting the existence of a *GUP1/2*-independent active glycerol transport. This transport unlike the one previously described is (i) absent from cells cultivated in either glucose or respiratory substrates, (ii) dependent on growth under salt-stress, without the need for glycerol production impairment (iii) yet subjected to glucose regulation, since it is detected in post-diauxic phase. Presently, efforts are being made to search for further genes involved in glycerol transport and/or regulation.

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